

REMARKS

The above amendments have been made to make minor editorial changes so as to generally improve the form of the specification and the claim.

Furthermore, the present Preliminary Amendment is submitted to delete the multiple dependency of the claims, thereby placing such claims in condition for examination and reducing the required PTO filing fee.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current Preliminary Amendment. The attached page is captioned "Version With Markings to Show Changes Made".

Respectfully submitted,

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December 4, 2001

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The operating mode, as anyone skilled in the art is at this point capable of realizing, is as follows:

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- In a first phase (Figure 1), the guide column, and therefore also the therewith connected piston 13, is completely raised; hydraulic fluid at an appropriate pressure is let in from the conduit 5 of the cylinder 3 so as to cause the two plates 1 and 2 to move closer to each other; the floating piston is in a lowered position with respect to the through-bore 22 which, as a result, is left clear and open so as to enable the oil to flow over from the inner cylindrical cavity 18, whose volume is decreasing gradually owing to the upper plate being so caused to move downwards, to the inner volume 16 of the cylinder 7.

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The floating piston does not fall back on to the bottom of the hollow cylinder 7, but is rather retained within said inner cylindrical cavity 18 by the action of an inner, preferably frusto-conical lower crown-like ring 23 which is arranged below said through-bore 22 and is adapted to stop said floating piston in a certain lower position thereof by interference with the upper cylindrical portion 20 thereof.

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In an advantageous manner, also the lower edge 40 of said upper portion 20 is shaped in the form of a frustum of cone so as to be able to perfectly fit against the frusto-conical shape of said crown-like ring 23, while the combination of the position of said crown-like ring with the height of said upper portion of the floating piston is such that, when the latter is brought to rest on said crown-like ring, said through-bore remains clear and open.

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- The next, ie. second phase (Figure 2) may be considered as an intermediate oil transfer phase. Hydraulic fluid keeps being let into the [piston] 3 from the conduit 5 and this causes the guide column, and the related plunger-type piston, to move further downwards, while the hydraulic fluid keeps flowing over as explained above.

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CLAIMS

1. Hydraulic press apparatus comprising:

- a lower table (1) and an upper table (2) adapted to be driven with a vertical motion against said lower plate by means of appropriate motion and position control means (3, 4, 5, 6),

- a hollow cylinder (7) provided under said lower plate and arranged with its axis extending vertically, said cylinder having its upper edge (8) applied in a tight-fitting manner against the lower surface (9) of said lower plate (1),

- a guide column (10) connected on top to said upper plate and having its lower end portion forming the rod of a piston (13) adapted to slide within said hollow cylinder,

- a hole (14) extending throughout said lower plate (1) and adapted to accommodate said vertically sliding guide column,

- an aperture (15) provided in the side surface of said hollow cylinder (7) and adapted to enable the inner volume (16), located above said piston, to communicate with appropriate means (17) adapted to apply a hydraulic pressure within said inner volume when said piston is in its lower position, characterized in that

- said guide column is provided with an inner cylindrical cavity (18) having a vertical axis and filled with hydraulic fluid, said cylindrical cavity extending into said piston (13) and coming out of the latter at the lower end portion thereof,

- there is provided a plunger-type piston adapted to slide within said inner cylindrical cavity, said piston being provided with an upper cylindrical portion (20)

e source of hydraulic pressure

that has such a diameter as to be able to plug said inner cavity, and with a lower portion (21) that has a smaller diameter so as to prevent it from entering into contact with the walls of said inner cylindrical cavity (18).

5 - there is provided a through-bore (22) adapted to enable said inner cylindrical cavity (18) to communicate with said inner volume (16) when said upper cylindrical portion (20) of said plunger-type piston is situated under the level of said through-bore.

10 2. Hydraulic press apparatus according to claim 1, characterized in that the lengths of said two portions (20, 21) of said plunger-type piston are such that, when the piston is in its lower position, said upper cylindrical portion of said plunger-type piston is adapted to plug said through-bore (22), and when said piston is in its position corresponding to the position of greatest separation of said lower and upper plates from each other, said upper cylindrical portion of said plunger-type piston is positioned so as to at least partially clear, ie. open said through-bore.

15 3. Hydraulic press apparatus according to claim 2, characterized in that, when the piston is in its lower position, said lower portion (21) abuts with its lower edge against the bottom wall (24) of said hollow cylinder (7).

20 4. Hydraulic press apparatus according to claim 2 or 3, characterized in that:

- said upper portion (20) of said plunger-type piston is connected to said lower portion (21) thereof by means of a frusto-conical connecting portion (40).
- said inner cylindrical cavity (18) is provided inside with a frusto-conical crown-like ring (23) arranged in a position below said through-bore (22) and adapted to engage said frusto-conical connecting portion so as to prevent said plunger-type piston from further displacing downwards.
- and the height of said upper portion (20) of said plunger-type piston is not smaller than the difference in height between the upper edge of said through-bore (22) and said crown-like ring (23), so as to be able to plug said through-bore when said plunger-type piston is located above and in contact with said crown-like ring (23).

5. Hydraulic press apparatus according to any of the preceding claims 2 to 4 characterized in that

- the upper edge (30) of said upper portion of said plunger-type piston has a frusto-conical shape,

5 - said inner cylindrical cavity (18) is provided inside with a second preferably frusto-conical crown-like ring (25) arranged in a position above said through-bore and adapted to engage said upper edge (30) of said upper portion when said guide column is in its lower position.

Claim 3

10 6. Hydraulic press apparatus according to any of the preceding claims 3 to 5 characterized in that there is provided an elastic member (27) on the bottom wall (24) of the hollow cylinder (7), in such a position as to be able to fit between said lower portion (21) and said bottom wall (24).

Claim 1

7. Hydraulic press apparatus according to any of the preceding claims 1 characterized in that there is provided a cylindrical member (33) above the level of the hydraulic fluid in said cylindrical cavity (18), and that the volume (34) of gas above said cylindrical member is put under pressure preferably through an external conduit (35).

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